

52

SPLIT

DART AEROSPACE LTD	Work Order:	19666B
Description: Fwd Crosstube	Part Number:	D2889
Drawing: D2889 Rev. B; D6005 Rev. A	Qty:	19
		Page 1 of 2

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveller <i>Dwg. not required RF 02.11.05</i>	<i>HA</i>	03.09.19	19
2	PG	Issue P/O: <i>1003008</i> a) Extrude as per Dwg D6005 length = 180" (Ref. D6005-180) b) Material: 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11) ) Seamless aluminum tube c) Minimum ultimate tensile strength = 77ksi d) Minimum tensile yield strength = 66ksi e) <b>Material certification required</b>	<i>U</i>	03.09.22	19
3	RG	Receive and inspect for transit damage <b>Ensure material certification attached</b>	<i>Q</i>	04-01-05	22
4	QC6	Inspect dimensions as per Dwg D6005 and check 180" length	<i>AB</i>	04.02.11	22 <i>PTO</i>
5	FP	Acid etch and alodine as per QSI 005 4.1 Inside and outside of tube <del>the inside and outside of the tube</del>	<i>2</i>	07.02.11	22
6	LG	Bend as per Dwg D2889 and Folio FT001 <b>Sign Page 2</b> <i>see attached sheets</i>	<i>CP</i>	04/05/13	5
7	QC6	Inspect dimensions per Dwg D2889 <b>Sign Page 2</b> <i>see attached sheets</i>			
8	LG	Deburr and Polish <b>Sign Page 2</b> <i>see attached sheets</i>			
9	FP	Acid etch and alodine as per QSI 005 4.1 Inside and outside of tube <i>Alodine done within 48 hours 04.05.14</i> <b>Sign Page 2</b>	<i>MM</i>	04/05/14	5
10	QC5	Inspect work to Step 9 <b>Sign Page 2</b>	<i>AB</i>	04/05/17	5
11	ST	Identify and stock	<i>AB</i>	04/05/17	5
12	AC	Cost / part: <i>849.89</i>	<i>54C</i>	04.05.20	5
13	DC	Close W/O <i>878.62</i> Inspect Level 21	<i>HA</i>	04.05.19	5

Rev	Date	Change	Revised By	Approved
A	99.05.31	New Issue, ECN 200	DM	
B	00.04.11	Remove Painting step	EC	
C	02.10.18	Re-format; Added spec	KJ <i>RF</i>	<i>QA</i>

RELEASED  
02/10/30 RF

Work Order:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Manuf / Design Mgr	Approval QC Inspector

NCR		WORK ORDER NON-CONFORMANCE						
DATE	STEP	Description of NC section A	Initial	Corrective Action Section B	Sign & Date	Verification Section C	Approval Design Mgr	Approval QC Inspector
19666		D2889						
04-02-11	41	Dimensions should be Ø 2.750 OD Ø 2.000 ID 0.375 Wall Actual dimensions Ø 2.741 OD Ø 2.000 ID Wall Variance between 0.375" and 0.361"	#	acceptable OD only 0.003" out of tolerance used on Extended gear find x tubes. - OK. (per D6005, OD is ±0.006 wall is ±0.015)	B 04-02-11	B 04-02-11	# 04-02-11	B 04-02-11
	6	TUBE IS OVERSIZED	#	SCRAP + DESTROY	# 04-05-11	N/A	# 04-05-11	# 04-05-11

PAR#: N/A Fault Category: manuf (Beady) DQA: JA Date: 04.05.19  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Scrap  
Scrap



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W/O Step	A	B	C	D	E	F	G	H	I	J	K	L
6	OP 04/05/11	OP 04/05/11	OP 04/05/11	OP 04/05/12	OP 04/05/12	OP 04/05/12						
7	AS 04/05/11	AS 04/05/11	AS 04/05/12	AS 04/05/12	AS 04/05/12	AS 04/05/12						
8	AS 04/05/12	AS 04/05/12	AS 04/05/12	AS 04/05/13	AS 04/05/13	PD 04/05/13						
9	AS 04/05/14	AS 04/05/14	AS 04/05/14	AS 04/05/14	AS 04/05/14	AS 04/05/14						
10	AS 04/05/17	AS 04/05/17	AS 04/05/17	AS 04/05/17	AS 04/05/17	AS 04/05/17						

RELEASED  
02/10/30 RE

# Abnahmeprüfbescheinigung 3.1 B - EN 10204

Inspection Certificate 3.1 B - EN 10204 I Certificat de Reception 3.1 B - EN 10204

**Kunde:** Dart Aerospace Ltd.  
**Client:** 1270 Aberdeen Street  
 K6A1K7 Hawkesbury, ON Canada

**Zeugnisnummer:**  
 Cert No.: / No. du certificat:  
**Bestellnummer:** 2005668  
 Order No. / No. de commande  
**Auftrag:** 6438/1  
 Our Reference/Notre Reference:

**Produkt:** Tubes seamless extruded  
**Product / Produit:**  
**Spezifikation:** QQA 200/11e, Tol. Acc to ASTM B 210  
**Specification:**

**Werkstoff:** 7075  
**Alloy/Alliage:**

**Zustand:** T 6511  
 Temper/Etat

**Abmessung:** 69,850 mm x 50,790 mm x 9,530 mm x 4572,00 mm  
**Size / Dimension:** Article D6005-180 2.750" x 0.375"

**Kennzeichnung:** Cert No.405/03-AWU-7075-T6511-Cast No.1049-QQA-200/11E-2.750"OD X0.375"Wall-Heat No.2974-Lot6438-1-1-  
**Marking/Marquage:** P.O.2005668

**Lieferung:** pcs. lbs  
 Delivered Material / Matériel délivre: 22 1120

## 1. Chemische Analyse

## Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.			1,2		2,1	0,18	5,1						
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20					
1049/03	0,124	0,239	1,361	0,057	2,372	0,192	5,683	0,037	0,004	0,0153	0,0001	0,0013	0,0030

**Hydrogen content:** 0,13 ccm/100 g Al

Elemente ohne Angabe < 0,01 % / Elements without indication < 0,01 %

## 2. Mechanische Eigenschaften

## Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) Ksi	yield (Rp0,2) Ksi	elongation 2" %	elongation A %	Hardness HB	
min.	77,0	66,0				
max.						
1	84,825	78,155	9,0		146	
2	86,275	80,040	8,0		157	

**Ergebnis der Prüfungen:** Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

**Test results:** We confirm that the delivery has been tested and applies to the agreements made on receipt of the order  
**Resultats:** Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

Aluminiumwerk Unna AG · Uelzener Weg 36 · D-59425 Unna

Dart Aerospace Ltd.  
1270 Aberdeen Street  
CDN Hawkesbury, ONT, K6A1K7

Aluminiumwerk Unna AG

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fax +49 (0) 23 03-206-116

info@alu-unna.de  
www.alu-unna.de

page: 1  
date: 28.11.2003  
customer: 40980

## delivery note

## 7620

your PO dated: 22.09.2003  
your PO No.: 2005668  
AWU PO: 6438

contact: Petra Eisenblätter  
Tel.: +(303) 755 5672  
Fax: +(303) 755 5936  
representative: CLAUS J. BETTER

CARRIER: Senator

Your VAT No.:  
AWU VAT No.: DE177869055

We supply acc. to our delivery terms and conditions:

item	quantity	unit	net kgs
------	----------	------	---------

001	22,000	PC	
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AWU article: 16538 / Customer article: D6005-180 2.750 x 0.375 x 180  
/Tariff no. 76082091

product: TUBES / seamless extruded / EN AW-7075 / round

condition: T 6511 / QQA 200/11E

outer diameter:	2,750 INCH Tol.	+0,012	-0,012
tol.for mean OD		+0,006	-0,006
inner diameter:	2,000 INCH		
wall thickness:	0,375 INCH Tol.	+0,037	-0,037
fixed length	180,000 INCH Tol.	+0,125	

test report acc. to EN 10204/3.1B / RM 531 / Rp0,2: 455

straightness 0,01 INCH / 1 FEET / RMS outer 25

tol. on quantity +10 % -10 %

2.750" OD 0.375" Wall, 180" lengths

Part Number D6005-180 crosstube

Surface Finish max. RMS 25

Tolerances per ASTM B210

Straightness 0.010" deviation /12" length

Outside surface: max. defects up to 0.005" (longitudinally)

Min. ultimate tensile strength 77 ksi



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ALUnna

Aluminiumwerk Unna AG · Uelzener Weg 36 · D-59425 Unna

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outer diameter:	2,750 INCH Tol.	+0,012	-0,012
tol. for mean OD		+0,006	-0,006

inner diameter:	2,000 INCH		
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wall thickness:	0,375 INCH Tol.	+0,037	-0,037
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fixed length	180,000 INCH Tol.	+0,125	
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test report acc. to EN 10204/3.1B / RM 531 / Rp0,2: 455

straightness 0,01 INCH / 1 FEET / RMS outer 25

tol. on quantity +10 % -10 %

2.750" OD 0.375" Wall, 180" lengths

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Commerzbank AG, Unna  
Konto-Nr. 102 56 00 · BLZ 443 400 37  
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